

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF PENNSYLVANIA (Philadelphia)**

DAWN KENNEDY

Plaintiff,

v.

CITY OF PHILADELPHIA

Defendant.

:
:
:
:
:
:
:
:
:

NO. 20-cv-00395-KSM

JURY TRIAL DEMANDED

PLAINTIFF'S RESPONSE TO DEFENDANT'S STATEMENT OF FACTS

1. Admitted.
2. Admitted.
3. Admitted.
4. Admitted.
5. Admitted.
6. Admitted.
7. Dr. Kidwell explains that analysis of THC and THC-COOH in hair is very difficult and care must be taken by the laboratory to avoid false positives from contamination or incorrect procedures. (Exh. B, Kidwell Report, pg. 10)

Dr. Kidwell's found numerous problems with Plaintiff's hair sample from Omega Laboratories, including:

- Incorrect sample length
 - No decontamination in initial screening test
 - Insufficient precision in sample weights
 - Insufficient precision in the initial test
 - Lack of decontamination procedure
 - Inaccurate internal standard additions
 - Use of conventional standard methods linear line
 - Understanding of the confirmation procedure
- (Exh. B, Kidwell Report, pg. 9-12)

Dr. Kidwell also notes that the Philadelphia City Directive 6.5 (City 303) states: “To ensure optimum accuracy, the tests will be drug-specific. The drug abuse screening test will consist of two tests: ...”

The ELISA tests used in the initial screening by Omega clearly does not meet the requirement of being drug specific. (Exh. B, Kidwell Report, pg. 11)

Dr. Kidwell even concluded that Omega “**does not measure the THC content of hair.**”

Id.

8. Admitted.

9. Admitted.

10. Admitted.

11. Admitted.

12. Admitted.

13. Admitted.

14. Admitted.

15. Admitted.

16. Admitted.

17. Admitted in part, denied in part. It is admitted that the Medical Review Officer made this statement. It is denied that Plaintiff’s explanation was incorrect.

18. Admitted.

19. Admitted.

20. Admitted.

21. Admitted.

22. Admitted. By way of further answer, said averment is a conclusion of law to which no response is required. By way of further answer, Plaintiff's operative complaint speaks for itself in its entirety.

23. Admitted. By way of further answer, said averment is a conclusion of law to which no response is required. By way of further answer, Plaintiff's operative complaint speaks for itself in its entirety.

24. Admitted.

25. Admitted.

26. Admitted.

27. Admitted.

28. Admitted.

29. Admitted.

30. Admitted.

31. Admitted.

32. Admitted. By way of further answer, Dr. Kidwell explained that cut-off levels are meaningless without knowing the weight of hair samples. Omega did not accurately weigh the samples, rendering the cut-off meaningless. (Exh. B, Kidwell Report, pg. 10-11)

33. Denied. Dr. Kidwell explained that hair tests for marijuana are very difficult and susceptible to false positives:

Analysis of THC and THC-COOH in hair is very difficult. Besides the instability of these materials, their concentrations from known users are at least 2000 times lower than cocaine, heroin, methamphetamine, and PCP and in general much more than that. Additionally, THC and THC-COOH are sticky molecules that in these low concentrations bind to surfaces of analytic glassware and tend to be lost in the analysis. The more trace the analysis the more care must be taken by the laboratory to avoid false positives from contamination or incorrect procedures. Id. at 10.

Dr. Kidwell further testified that hair tests have a racial disparate impact:

African Americans are disparately impacted by false accusations of drug use (false positive from testing) when hair testing for drugs is employed. Genetics and cultural differences in how hair is cosmetically treated (imposed by those genetics) provides especially African Americans with hair that is more susceptible to contamination from the environment and thereby false accusations of drug use from mere drug exposure. (Exh. B, Kidwell Report, pg. 15)

34. Admitted.

35. Admitted in part, denied in part. While Dr. Kidwell states that some drugs are more readily detected by hair than urinalysis, Dr. Kidwell also states that hair tests for marijuana are very difficult and susceptible to false positives. Id. at 10.

Dr. Kidwell also states that “one cannot determine drug use from a single test.” Id. at 14. Dr. Kidwell provides alternative ways to test, including taking “NO adverse action based solely on a hair test as hair measures exposure to drugs.” Id.

36. Admitted.

37. Admitted.

38. Admitted.

39. Admitted.

40. Admitted.

41. Denied. Dr. Kidwell explains that analysis of THC and THC-COOH in hair is very difficult and care must be taken by the laboratory to avoid false positives from contamination or incorrect procedures. (Exh. B, Kidwell Report, pg. 10)

Dr. Kidwell’s found numerous problems with Plaintiff’s hair sample from Omega Laboratories, including:

- Incorrect sample length
- No decontamination in initial screening test
- Insufficient precision in sample weights

- Insufficient precision in the initial test
- Lack of decontamination procedure
- Inaccurate internal standard additions
- Use of conventional standard methods linear line
- Understanding of the confirmation procedure
(Exh. B, Kidwell Report, pg. 9-12)

Dr. Kidwell also notes that the Philadelphia City Directive 6.5 (City 303) states: “To ensure optimum accuracy, the tests will be drug-specific. The drug abuse screening test will consist of two tests: ...”

The ELISA tests used in the initial screening by Omega clearly does not meet the requirement of being drug specific. (Exh. B, Kidwell Report, pg. 11)

Dr. Kidwell even concluded that Omega “**does not measure the THC content of hair.**”

Id.

42. Admitted. By way of further answer, Dr. Kidwell explained that cut-off levels are meaningless without knowing the weight of hair samples. Omega did not accurately weigh the samples, rendering the cut-off meaningless. (Exh. B, Kidwell Report, pg. 10-11)

43. Admitted. By way of further answer, Dr. Kidwell explained that cut-off levels are meaningless without knowing the weight of hair samples. Omega did not accurately weigh the samples, rendering the cut-off meaningless. (Exh. B, Kidwell Report, pg. 10-11)

44. Admitted.

45. Admitted. Plaintiff reserves the right to voir dire Defendant’s expert at trial.

46. Admitted. Plaintiff reserves the right to voir dire Defendant’s expert at trial.

47. Admitted.

48. Admitted. By way of further answer, Dr. Kidwell’s found numerous problems with Plaintiff’s hair sample from Omega Laboratories, including:

- Incorrect sample length

- No decontamination in initial screening test
- Insufficient precision in sample weights
- Insufficient precision in the initial test
- Lack of decontamination procedure
- Inaccurate internal standard additions
- Use of conventional standard methods linear line
- Understanding of the confirmation procedure
(Exh. B, Kidwell Report, pg. 9-12)

Dr. Kidwell also notes that the Philadelphia City Directive 6.5 (City 303) states: “To ensure optimum accuracy, the tests will be drug-specific. The drug abuse screening test will consist of two tests: ...”

The ELISA tests used in the initial screening by Omega clearly does not meet the requirement of being drug specific. (Exh. B, Kidwell Report, pg. 11)

Dr. Kidwell even concluded that Omega “**does not measure the THC content of hair.**”

Id.

49. Admitted. By way of further answer, Dr. Kidwell’s found numerous problems with Plaintiff’s hair sample from Omega Laboratories, including:

- Incorrect sample length
- No decontamination in initial screening test
- Insufficient precision in sample weights
- Insufficient precision in the initial test
- Lack of decontamination procedure
- Inaccurate internal standard additions
- Use of conventional standard methods linear line
- Understanding of the confirmation procedure
(Exh. B, Kidwell Report, pg. 9-12)

50. Admitted. By way of further answer, Dr. Kidwell’s found numerous problems with Plaintiff’s hair sample from Omega Laboratories, including:

- Incorrect sample length
- No decontamination in initial screening test
- Insufficient precision in sample weights
- Insufficient precision in the initial test

- Lack of decontamination procedure
- Inaccurate internal standard additions
- Use of conventional standard methods linear line
- Understanding of the confirmation procedure
(Exh. B, Kidwell Report, pg. 9-12)

51. Admitted in part, denied in part. It is admitted that was Defendant's expert's testimony. It is denied that Omega's test was accurate.

Dr. Kidwell's found numerous problems with Plaintiff's hair sample from Omega

Laboratories, including:

- Incorrect sample length
- No decontamination in initial screening test
- Insufficient precision in sample weights
- Insufficient precision in the initial test
- Lack of decontamination procedure
- Inaccurate internal standard additions
- Use of conventional standard methods linear line
- Understanding of the confirmation procedure
(Exh. B, Kidwell Report, pg. 9-12)

52. Denied. Dr. Kidwell's found numerous problems with Plaintiff's hair sample from

Omega Laboratories, including:

- Incorrect sample length
- No decontamination in initial screening test
- Insufficient precision in sample weights
- Insufficient precision in the initial test
- Lack of decontamination procedure
- Inaccurate internal standard additions
- Use of conventional standard methods linear line
- Understanding of the confirmation procedure
(Exh. B, Kidwell Report, pg. 9-12)

53. Dr. Kidwell testified:

Importantly, Officer Kennedy has testified that she treats the nape hair (which was tested by Omega) with "Wild Growth" (Kennedy 35:20) whereas she treats the top of her hair (which was test by USDTL) with less oil and a different brand "Cactus Oil" (Kennedy 66:23). As ethnic hair care products have been shown to absorb nitrogencontaining drugs from the environment and reasonably be expected to do the same for THC (as discussed above), this puts the

Omega hair sample at a greater risk of contamination and false positives because (1) more oil is present and (2) the oil was not removed by Omega before testing the hair.

(Exh. B, Kidwell Report, pg. 12-13)

54. Denied. Objection: this is irrelevant. There is no evidence that pulverizing was used regarding Plaintiff's hair. Dr. Kidwell explained:

The ability to extract broad classes of drugs and metabolites with acidified methanol is not clear, but I will not discuss that further. Omega's FDA clearance for their THCCOOH ELISA test from 2012 (K122759) states: "Proprietary and patent pending method of pulverizing hair vs cutting the hair into small segments prior to acid methanol extraction. This improved extraction times without loss of efficiency." They do not appear to use that extraction method on Officer Kennedy's hair.

(Exh. B, Kidwell Report, pg. 20, footnote 63)

55. Denied. Dr. Kidwell's found numerous problems with Plaintiff's hair sample from Omega Laboratories, including:

- Incorrect sample length
 - No decontamination in initial screening test
 - Insufficient precision in sample weights
 - Insufficient precision in the initial test
 - Lack of decontamination procedure
 - Inaccurate internal standard additions
 - Use of conventional standard methods linear line
 - Understanding of the confirmation procedure
- (Exh. B, Kidwell Report, pg. 9-12)

Dr. Kidwell also notes that the Philadelphia City Directive 6.5 (City 303) states: "To ensure optimum accuracy, the tests will be drug-specific. The drug abuse screening test will consist of two tests: ..."

The ELISA tests used in the initial screening by Omega clearly does not meet the requirement of being drug specific. (Exh. B, Kidwell Report, pg. 11)

Dr. Kidwell even concluded that Omega **"does not measure the THC content of hair."**

Id.

56. Denied. Dr. Kidwell explained that some of the issues in this case have not been well studied. For example, Dr. Kidwell states:

...although THC and THC-COOH are not considered to bind to melanin (as it has not been well studied), they are suspected to bind to sebaceous secretions. Oil can play a role in bias. (Exh. B, pg. 5).

...Importantly, Officer Kennedy has testified that she treats the nape hair (which was tested by Omega) with “Wild Growth” (Kennedy 35:20) whereas she treats the top of her hair (which was test by USDTL) with less oil and a different brand “Cactus Oil” (Kennedy 66:23). As ethnic hair care products have been shown to absorb nitrogencontaining drugs from the environment and reasonably be expected to do the same for THC (as discussed above), this puts the Omega hair sample at a greater risk of contamination and false positives because (1) more oil is present and (2) the oil was not removed by Omega before testing the hair.

(Exh. B, Kidwell Report, pg. 12-13)

57. Denied. Dr. Kidwell explains that analysis of THC and THC-COOH in hair is very difficult and care must be taken by the laboratory to avoid false positives from contamination or incorrect procedures. (Exh. B, Kidwell Report, pg. 10)

Dr. Kidwell also states that hair tests for marijuana are very difficult and susceptible to false positives. Id. at 10.

Dr. Kidwell also states that “one cannot determine drug use from a single test.” Id. at 14. Dr. Kidwell provides alternative ways to test, including taking “NO adverse action based solely on a hair test as hair measures exposure to drugs.” Id.

58. Denied. Dr. Kidwell addresses the issue of THC-COOH (THC carboxylic acid). Dr. Kidwell explains that the presence of THC-COOH does not automatically prove use from exposure:

The metabolism and origin of most drugs of abuse in hair have been well studied. THC has not. It is generally believed that THC-COOH is considered to be a definitive metabolite and its presence demonstrates use of marijuana. **But is THC-COOH a definitive metabolite of THC? Not really. THC is actually an unstable compound and decomposes on exposure to oxygen and light into a wide variety**

of uncharacterized materials. Interestingly, the major human metabolites of THC (and the ones we find in hair) are all oxidization products at an allylic position caused by removing hydrogen atoms. Allylic hydrogens are especially prone to non-specific oxidation from just exposure to oxygen in the air, perhaps catalyzed by light.⁵¹ In the chemical synthesis of THC-COOH for the high-yield preparation of standards, oxidation can form THCCOOH.

Non-specific production of THC-COOH from THC has been shown to occur over a decade ago. From unpublished work by Associated Pathologists Laboratories, they quantitated THC and THC-COOH in hair that was stored one year. Figure 3 clearly shows that **THC is unstable in hair upon storage with the majority of samples showing a profound decrease in THC over a one year storage. What is more telling is THCCOOH, the “metabolite” increases over time in the majority of the samples. Clearly this is not due to human metabolism as these are cut hair samples stored in a laboratory.** The logical conclusion is that a small fraction of THC is degrading to the specific compound THC-COOH (being tested) and the rest decomposing to unknown materials. There is some speculation that melanin may play a role in the degradation of THC as melanin is known to activate oxygen in a manner similar to Fenton oxidations.

Officer Kennedy’s hair was only tested for the presence of THC-COOH. Other materials must be present as the amounts indicated by the ELISA (the initial, general test) and GC/MS/MS (the specific confirmation test) do not agree. **Knowing both materials may be helpful in distinguishing use from exposure...** (Exh. B, Kidwell Report, pg. 8)

Dr. Kidwell further explains:

Analysis of THC and THC-COOH in hair is very difficult. Besides the instability of these materials, their concentrations from known users are at least 2000 times lower than cocaine, heroin, methamphetamine, and PCP and in general much more than that. Additionally, THC and THC-COOH are sticky molecules that in these low concentrations bind to surfaces of analytic glassware and tend to be lost in the analysis. The more trace the analysis the more care must be taken by the laboratory to avoid false positives from contamination or incorrect procedures. Id. at 10.

Dr. Kidwell’s found numerous problems with Plaintiff’s hair sample from Omega

Laboratories, including:

- Incorrect sample length
- No decontamination in initial screening test
- Insufficient precision in sample weights
- Insufficient precision in the initial test
- Lack of decontamination procedure
- Inaccurate internal standard additions

- Use of conventional standard methods linear line
- Understanding of the confirmation procedure (Exh. B, Kidwell Report, pg. 9-12)

Dr. Kidwell also notes that the Philadelphia City Directive 6.5 (City 303) states: “To ensure optimum accuracy, the tests will be drug-specific. The drug abuse screening test will consist of two tests: ...”

The ELISA tests used in the initial screening by Omega clearly does not meet the requirement of being drug specific. (Exh. B, Kidwell Report, pg. 11)

59. Denied. Dr. Kidwell explains that analysis of THC and THC-COOH in hair is very difficult and care must be taken by the laboratory to avoid false positives from contamination or incorrect procedures. (Exh. B, Kidwell Report, pg. 10)

60. Denied. Dr. Kidwell explains that analysis of THC and THC-COOH in hair is very difficult and care must be taken by the laboratory to avoid false positives from contamination or incorrect procedures. (Exh. B, Kidwell Report, pg. 10)

61. Admitted.

62. Denied. Dr. Kidwell explains:

Omega uses a simple extraction (Omega p. 13) with acidified methanol for the initial immunoassay testing. This process does allow extraction of most drug classes so that the drug of interest can be rapidly identified for confirmation testing (which requires different and cumbersome procedures for each drug class). However, because Omega does not decontaminate the hair, hair that has been treated with oils (as was Officer Kennedy’s) hair can confuse the immunoassay and can produce false positives.

63. Denied. Dr. Kidwell explains:

Omega uses a simple extraction (Omega p. 13) with acidified methanol for the initial immunoassay testing. This process does allow extraction of most drug classes so that the drug of interest can be rapidly identified for confirmation testing (which requires different and cumbersome procedures for each drug class). However, because Omega does not decontaminate the hair, hair that has been

treated with oils (as was Officer Kennedy's) hair can confuse the immunoassay and can produce false positives.

64. Denied. Dr. Kidwell opined that Plaintiff's Omega hair test was a false positive:

Dr. Kadehjian's arguments have not changed my opinion that Officer Kennedy was falsely accused of drug use and that identification was due to her race in combination with the testing protocols used by the City. In fact, the current analysis of the City data reinforces my opinion.
(Exh. C, Kidwell Supplemental Report, pg. 1)

65. Denied. Dr. Kidwell explains:

Omega uses a simple extraction (Omega p. 13) with acidified methanol for the initial immunoassay testing. This process does allow extraction of most drug classes so that the drug of interest can be rapidly identified for confirmation testing (which requires different and cumbersome procedures for each drug class). However, because Omega does not decontaminate the hair, hair that has been treated with oils (as was Officer Kennedy's) hair can confuse the immunoassay and can produce false positives.

66. Admitted.

67. Denied. Dr. Kidwell explained:

A urine specimen for Officer Kennedy taken at the same time by the Philadelphia Police Department tested negative. Like the hair sample, I requested the full litigation package from Drug Scan (Specimen ID: 510026042, collected 3-20-19). Careful examination of the raw data does not indicate even the hint of THC metabolites at the lowest levels of testing. Furthermore, an additional urine sample collected on the initiative of Officer Kennedy was tested by LabCorp and found negative. I also requested the full litigation package for this sample but only received a summary that basically indicated that the sample was normal and negative. All the samples (hair and urine) appeared normal with no hint of evasion of the drug test.

The easiest way to reconcile these disparate analyses is to invoke passive exposure and thereby a false positive in the Omega hair sample.

(Exh. B, Kidwell Report, pg. 14)

68. Denied. Among the reasons for Omega's test being inaccurate, Dr. Kidwell explained,

inter alia:

Officer Kennedy's hair was tested at too long of length. The laboratory had protocols to test hair cut to 1.5". That was not done in her case and thus subjected

her sample to, in my opinion, different treatment from that received by other individuals similarly situated. Dr. Kadehjian need not look any further than the Omega litigation package that shows that Officer Kennedy's hair was the longest tested in that batch (where length was provided, page 12 of 82, for his reference). One can speculate as to why this was the case. I will not do that here but this is a form of purposeful discrimination in not following protocol. In my experience, African-American female hair is very curly and difficult and time consuming to align and cut to length if it is not cut during the collection process, as this sample was not. Why the Omega collection process did not have a requirement to cut the hair to a defined length while on the head is unclear. I do note that USDTL, the laboratory where Officer Kennedy sent a second sample, did have the requirement that the collection facility cut the hair to length and it appeared to have been met in the instant case.

(Exh. C, Kidwell Supplemental Report, pg. 7-8)

69. Denied. Among the reasons for Omega's test being inaccurate, Dr. Kidwell explained,

inter alia:

Officer Kennedy's hair was tested at too long of length. The laboratory had protocols to test hair cut to 1.5". That was not done in her case and thus subjected her sample to, in my opinion, different treatment from that received by other individuals similarly situated. Dr. Kadehjian need not look any further than the Omega litigation package that shows that Officer Kennedy's hair was the longest tested in that batch (where length was provided, page 12 of 82, for his reference). One can speculate as to why this was the case. I will not do that here but this is a form of purposeful discrimination in not following protocol. In my experience, African-American female hair is very curly and difficult and time consuming to align and cut to length if it is not cut during the collection process, as this sample was not. Why the Omega collection process did not have a requirement to cut the hair to a defined length while on the head is unclear. I do note that USDTL, the laboratory where Officer Kennedy sent a second sample, did have the requirement that the collection facility cut the hair to length and it appeared to have been met in the instant case.

(Exh. C, Kidwell Supplemental Report, pg. 7-8)

70. Denied. Dr. Kidwell does address the issue of THC-COOH (THC carboxylic acid). Dr.

Kidwell explains that the presence of THC-COOH does not automatically prove use from exposure:

The metabolism and origin of most drugs of abuse in hair have been well studied. THC has not. It is generally believed that THC-COOH is considered to be a definitive metabolite and its presence demonstrates use of marijuana. **But is THC-COOH a definitive metabolite of THC? Not really. THC is actually an unstable**

compound and decomposes on exposure to oxygen and light into a wide variety of uncharacterized materials. Interestingly, the major human metabolites of THC (and the ones we find in hair) are all oxidization products at an allylic position caused by removing hydrogen atoms. Allylic hydrogens are especially prone to non-specific oxidation from just exposure to oxygen in the air, perhaps catalyzed by light.⁵¹ In the chemical synthesis of THC-COOH for the high-yield preparation of standards, oxidation can form THCCOOH.

Non-specific production of THC-COOH from THC has been shown to occur over a decade ago. From unpublished work by Associated Pathologists Laboratories, they quantitated THC and THC-COOH in hair that was stored one year. Figure 3 clearly shows that **THC is unstable in hair upon storage with the majority of samples showing a profound decrease in THC over a one year storage. What is more telling is THCCOOH, the “metabolite” increases over time in the majority of the samples. Clearly this is not due to human metabolism as these are cut hair samples stored in a laboratory.** The logical conclusion is that a small fraction of THC is degrading to the specific compound THC-COOH (being tested) and the rest decomposing to unknown materials. There is some speculation that melanin may play a role in the degradation of THC as melanin is known to activate oxygen in a manner similar to Fenton oxidations.

Officer Kennedy’s hair was only tested for the presence of THC-COOH. Other materials must be present as the amounts indicated by the ELISA (the initial, general test) and GC/MS/MS (the specific confirmation test) do not agree. **Knowing both materials may be helpful in distinguishing use from exposure...** (Exh. B, Kidwell Report, pg. 8)

Dr. Kidwell further explains:

Analysis of THC and THC-COOH in hair is very difficult. Besides the instability of these materials, their concentrations from known users are at least 2000 times lower than cocaine, heroin, methamphetamine, and PCP and in general much more than that. Additionally, THC and THC-COOH are sticky molecules that in these low concentrations bind to surfaces of analytic glassware and tend to be lost in the analysis. The more trace the analysis the more care must be taken by the laboratory to avoid false positives from contamination or incorrect procedures. Id. at 10.

Dr. Kidwell’s found numerous problems with Plaintiff’s hair sample from Omega

Laboratories, including:

- Incorrect sample length
- No decontamination in initial screening test
- Insufficient precision in sample weights
- Insufficient precision in the initial test
- Lack of decontamination procedure

- Inaccurate internal standard additions
- Use of conventional standard methods linear line
- Understanding of the confirmation procedure (Exh. B, Kidwell Report, pg. 9-12)

Dr. Kidwell also notes that the Philadelphia City Directive 6.5 (City 303) states: “To ensure optimum accuracy, the tests will be drug-specific. The drug abuse screening test will consist of two tests: ...”

The ELISA tests used in the initial screening by Omega clearly does not meet the requirement of being drug specific. (Exh. B, Kidwell Report, pg. 11)

71. Admitted in part, denied in part. Dr. Kidwell explains:

There is not a good correlation of uptake of cocaine to hair color. If not hair color, then what could account for this approximately 144 fold difference in incorporation rates in these 45 different hair “types”? We have postulated several factors: genetics, hair color, and cosmetic treatment (among others) to account for different incorporation rates. Because hair color plays only a small role, we have termed this bias “cultural bias” with the implication that cosmetic treatment is the dominant factor.

To cause a hair positive, there first must be the opportunity for drugs being present. Then the drugs must penetrate the cuticle and enter the cortex, which contains the melanin granules. Although melanin and therefore hair color plays a role in the final amount of binding (if equilibrium is reached), the first step is getting past the cuticle. Id. at pg. 5.

Dr. Kidwell also explains that hair color is not the only factor, which makes African Americans more susceptible to false positives:

...a number of factors such as hair color, hair texture, and cosmetic treatments all closely linked to race and culture that make African Americans and especially African-American females more susceptible to being falsely accused of drug use. (Exh. B, Kidwell Supp. Report, pg. 1)

72. Denied. Dr. Kidwell’s report identifies multiple reasons why hair tests have a racial disparate impact:

...a number of factors such as hair color, hair texture, and cosmetic treatments all closely linked to race and culture that make African Americans and especially African-American females more susceptible to being falsely accused of drug use. (Exh. B, Kidwell Supp. Report, pg. 1)

73. Denied. Dr. Kidwell's report identifies multiple reasons why hair tests have a racial disparate impact:

...a number of factors such as hair color, hair texture, and cosmetic treatments all closely linked to race and culture that make African Americans and especially African-American females more susceptible to being falsely accused of drug use. (Exh. B, Kidwell Supp. Report, pg. 1)

74. Denied. Dr. Kidwell's report identifies multiple reasons why hair tests have a racial disparate impact:

...a number of factors such as hair color, hair texture, and cosmetic treatments all closely linked to race and culture that make African Americans and especially African-American females more susceptible to being falsely accused of drug use. (Exh. B, Kidwell Supp. Report, pg. 1)

75. Denied. Dr. Kidwell does not concede this point. Dr. Kidwell explains that the presence of THC-COOH does not automatically prove use from exposure:

The metabolism and origin of most drugs of abuse in hair have been well studied. THC has not. It is generally believed that THC-COOH is considered to be a definitive metabolite and its presence demonstrates use of marijuana. **But is THC-COOH a definitive metabolite of THC? Not really. THC is actually an unstable compound and decomposes on exposure to oxygen and light into a wide variety of uncharacterized materials.** Interestingly, the major human metabolites of THC (and the ones we find in hair) are all oxidization products at an allylic position caused by removing hydrogen atoms. Allylic hydrogens are especially prone to non-specific oxidation from just exposure to oxygen in the air, perhaps catalyzed by light.⁵¹ In the chemical synthesis of THC-COOH for the high-yield preparation of standards, oxidation can form THCCOOH.

Non-specific production of THC-COOH from THC has been shown to occur over a decade ago. From unpublished work by Associated Pathologists Laboratories, they quantitated THC and THC-COOH in hair that was stored one year. Figure 3 clearly shows that **THC is unstable in hair upon storage with the majority of samples showing a profound decrease in THC over a one year storage. What is more telling is THCCOOH, the "metabolite" increases over time in the majority of the samples. Clearly this is not due to human metabolism as these**

are cut hair samples stored in a laboratory. The logical conclusion is that a small fraction of THC is degrading to the specific compound THC-COOH (being tested) and the rest decomposing to unknown materials. There is some speculation that melanin may play a role in the degradation of THC as melanin is known to activate oxygen in a manner similar to Fenton oxidations.

Officer Kennedy's hair was only tested for the presence of THC-COOH. Other materials must be present as the amounts indicated by the ELISA (the initial, general test) and GC/MS/MS (the specific confirmation test) do not agree. **Knowing both materials may be helpful in distinguishing use from exposure...** (Exh. B, Kidwell Report, pg. 8)

Dr. Kidwell further explains:

Analysis of THC and THC-COOH in hair is very difficult. Besides the instability of these materials, their concentrations from known users are at least 2000 times lower than cocaine, heroin, methamphetamine, and PCP and in general much more than that. Additionally, THC and THC-COOH are sticky molecules that in these low concentrations bind to surfaces of analytic glassware and tend to be lost in the analysis. The more trace the analysis the more care must be taken by the laboratory to avoid false positives from contamination or incorrect procedures. Id. at 10.

Dr. Kidwell's found numerous problems with Plaintiff's hair sample from Omega

Laboratories, including:

- Incorrect sample length
 - No decontamination in initial screening test
 - Insufficient precision in sample weights
 - Insufficient precision in the initial test
 - Lack of decontamination procedure
 - Inaccurate internal standard additions
 - Use of conventional standard methods linear line
 - Understanding of the confirmation procedure
- (Exh. B, Kidwell Report, pg. 9-12)

Dr. Kidwell also notes that the Philadelphia City Directive 6.5 (City 303) states: "To ensure optimum accuracy, the tests will be drug-specific. The drug abuse screening test will consist of two tests: ..."

The ELISA tests used in the initial screening by Omega clearly does not meet the requirement of being drug specific. (Exh. B, Kidwell Report, pg. 11)

WEISBERG LAW

/s/ David A. Berlin

David A. Berlin, Esq.
PA Attorney ID No. 314400
Matthew B. Weisberg, Esq.
PA Attorney ID No. 85570
7 South Morton Ave
Morton, PA 19070
610-690-0801
Fax: 610-690-0880
Attorneys for Plaintiff

MILDENBERG LAW FIRM

/s/ Brian R. Mildenberg, Esq.

Brian R. Mildenberg, Esq.
PA Attorney ID No. 84861
1735 Market St.,
Suite 3750
Philadelphia, PA 19103
215-545-4870
Fax: 215-545-4871
brian@mildenberglaw.com
www.MildenbergLaw.com
Attorney for Plaintiff